Application Registration with VMware® ThinApp™

INFORMATION GUIDE

LEGACY CONTENT: This paper contains valuable information, although some details are different for the current release of the product.

vmware®

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Desktop Integration of Virtualized Applications

The process of application registration integrates the virtualized application packages with the desktop operating system. The process of registering applications will take into account the access control mechanisms that allow administrators to restrict usage to specified Active Directory groups providing end users role based access to virtualized applications. Application registration is not mandatory, ThinApp packages will launch and execute without registration. However, end users and administrators can benefit from the integration of virtualized applications into the desktop because of the following:

- Creation of Windows Shortcuts on the **Start Menu** and **Desktop** for the applications
- Creation of File Type Associations, Protocols, and Object Types to launch virtualized applications
- Creation of Application Entries in the **Add/Remove Programs** Control Panel applet

Figure 1 and Figure 2 show the state of the desktop and application integration before and after application registration.

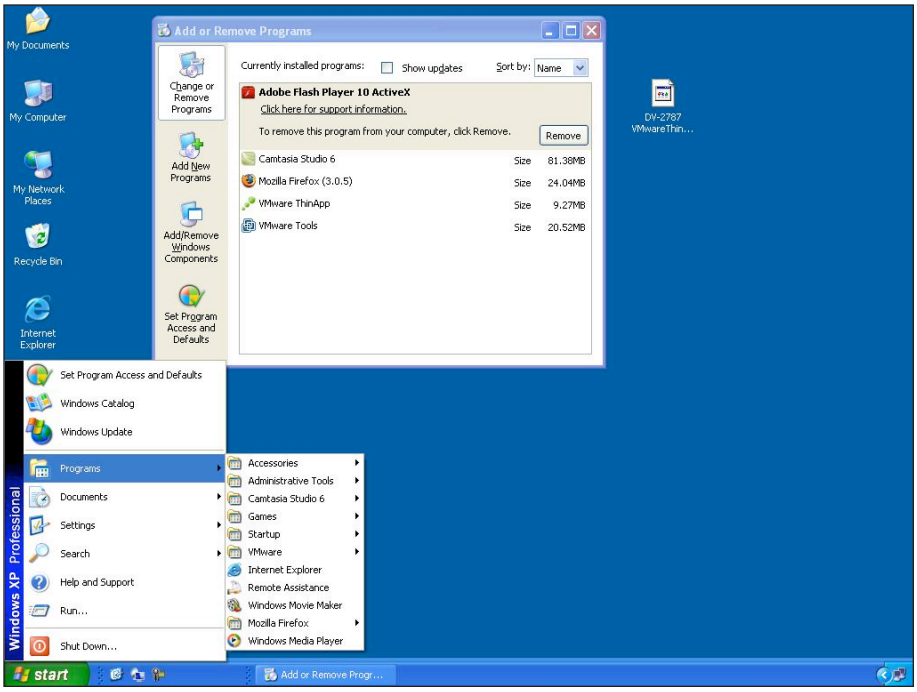

Figure 1: Before Application Registration

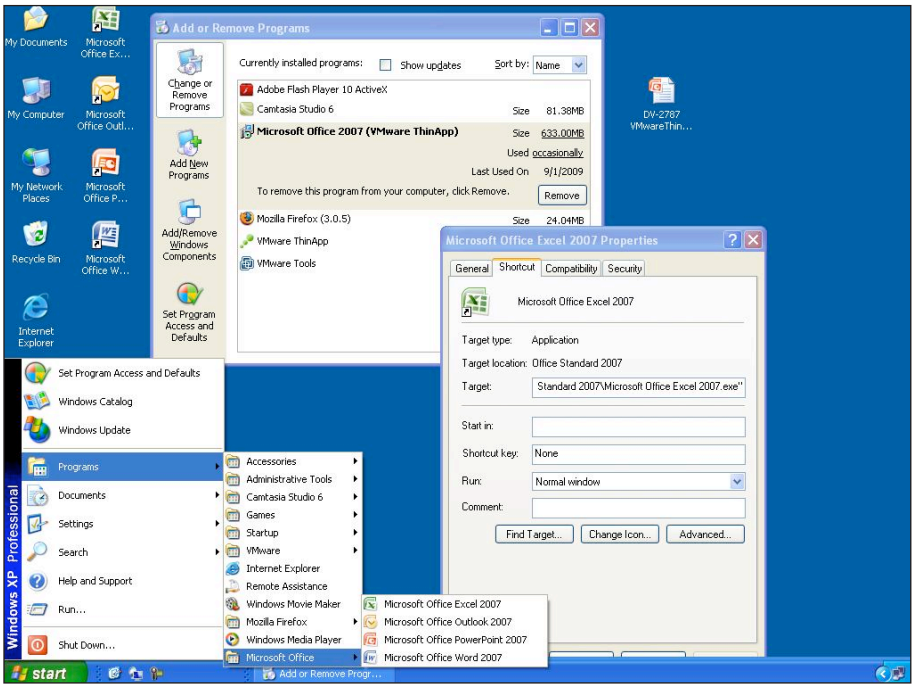

Figure 2: After Application Registration

Application Registration is a simple process that makes use of a lightweight utility called ThinReg that can be called from a number of mechanisms. Subsequent sections will cover a number of items to consider before deployment and registration of the ThinApp application packages.

About This Guide

This information guide provides guidance for the registration of ThinApp application packages for partners, resellers, and customers of VMware. It is intended to provide recommended methods for desktop integration of virtualized applications for IT organizations. For additional details on the application registration tool, ThinReg, and deployment guidance, please see the Additional Resources section at the end of the document.

VMware ThinApp Overview

VMware ThinApp is an agentless application virtualization solution that allows IT organizations to provide applications to end users without managing the complexity of application conflicts and prerequisites or operating system dependencies. VMware virtual machine technology decouples the operating system from hardware. Similarly, VMware ThinApp technology decouples the application from the operating system, for flexibility, portability, and isolation. VMware ThinApp plugs directly into existing IT tools and processes—enabling corporate IT organizations and ISVs to deliver encapsulated application containers across a variety of operating systems without complex configuration and installation requirements.

VMware ThinApp integrates natively with Active Directory as well as with many other third-party solutions for desktop management. All the functions discussed in this document utilize native features and functions of the generally available VMware ThinApp technology. VMware ThinApp also has partnered with specific vendors to deliver customized and integrated functionality for deployment, discovery, inventory, and license utilization. This integration can further increase operational and administrative efficiencies for organizations utilizing application virtualization.

Benefits

By abstracting applications from the underlying operating systems, application virtualization augments both traditional and virtual desktop solutions. Many customers have deployed application virtualization to their physical devices as a first step toward a transition to virtual desktops as hardware refresh cycles occur or operating system migrations are mandated. VMware ThinApp technology delivers the same benefits for physical desktops, virtual desktops, and terminal services-based platforms. The use of existing infrastructures for distribution, update, and registration of virtualized applications to end users allows you to leverage the benefits of application virtualization rapidly across the enterprise without a costly investment in redundant or dedicated infrastructure.

Application Registration

Registration of virtualized applications to end users creates shortcuts on the desktop, file-type, protocol, object type associations, and entries in the Add/Remove programs applet of the Control Panel. The Thinreg.exe tool is a simple utility, which automates the registration process, and can be run from any scripting mechanism or command prompt. The ThinReg.exe can be local to the operating system on a remote share. An example would be placing the ThinReg tool in the netlogon share and calling it from a login script. Administrators can run ThinReg against an entire directory of ThinApp packages by using an asterisk (*) as a wildcard character. Figure 3 lists the possible parameters and syntax for using ThinReg.

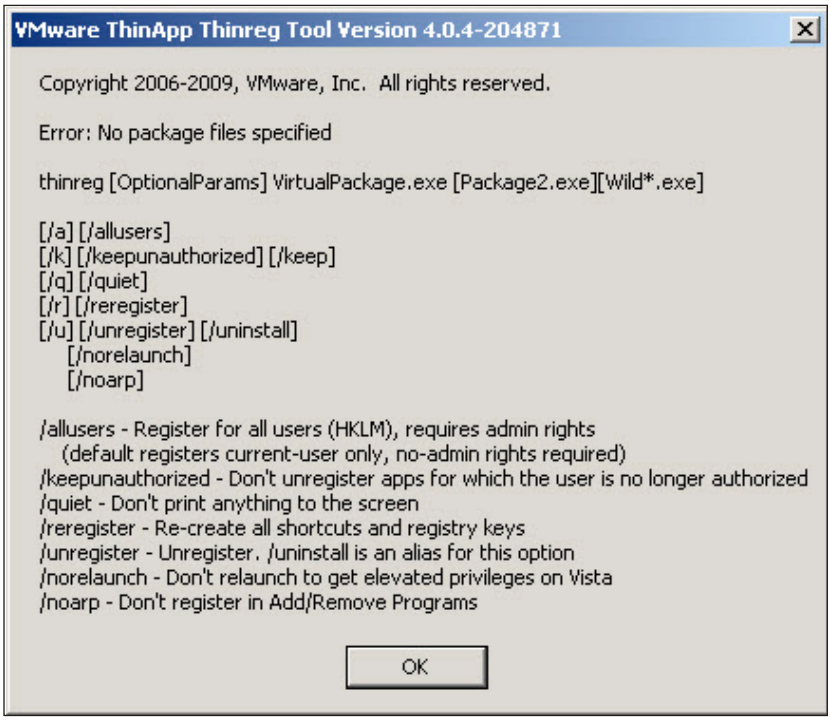

Figure 3: Possible parameter and syntax for using ThinReg

Since the registration process can enumerate which users have access to application packages, the ThinReg process can be run against an entire directory of application packages; however, it only registers the applications to which the user is entitled. Administrators can use pre-made scripts that run based on group membership to only register packages that are valid for a certain group or for individuals. Two common methods of implementation using Active Directory are described briefly below.

Login Script-based

Implementation of the Thinreg executable can be incorporated into an existing login script with standard methods such as .bat, WSH, KIX, or vbScript. See example below:

```
%logonserver%\netlogon\thinreg.exe /Q \\company.com\applications\*.exe
```

Local Script via Registry Run Key or Active Directory GPO-managed LogOn Script

IT organizations can choose to implement the application registration process locally on the workstations instead of incorporating it into the login script. The Run key of the registry can call the Thinreg.exe file to perform the necessary functions on login. Placing the Thinreg.exe in the Windows directory simplifies the execution of the script and requires nothing more than the executable to function.

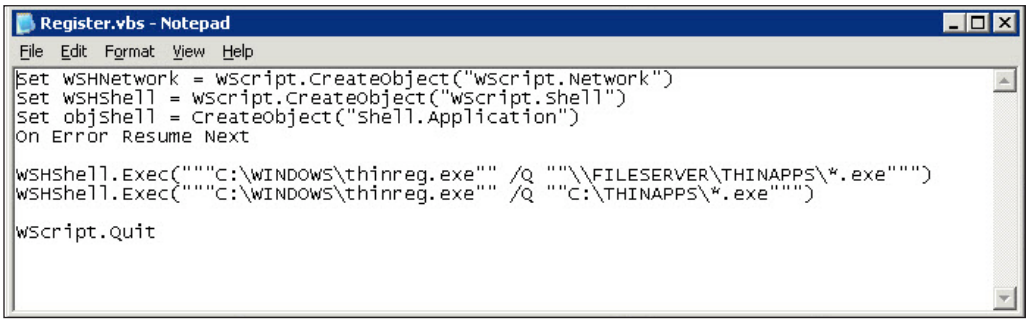

Figure 4: Placing Thinreg .exe in Windows directory

Role-Based Access to Applications

The process of deploying virtualized applications offers administrators control and flexibility over which machines and users receive either the application packages or access to the packages. Utilizing Active Directory or an alternative software deployment solution for distribution allows an organization to use the existing processes and controls. In addition to these organizational controls, VMware ThinApp allows an administrator to embed access control into the package by utilizing the PermittedGroup function which can be specified during the Setup Capture procress or amended afterward in the Package.Ini file. This access control mechanism is obfuscated from the end user when the package is built so it is impossible to identify or remove before the application is launched. In this way, the access control travels with the package if it is moved between devices after deployment. This mechanism can also be used when packages are hosted centrally on a file share as a secondary control in addition to file share permissions. To remove access to an application the administrator simply removes the user from the Active Directory group and Thinreg will automatically unregister that application for the user.

Active Directory Permitted Groups

You can control access to applications using Active Directory groups. When the administrator specifies PermittedGroups in the setup capture process or manually places the SIDS in the package.ini file, they are embedded into the package during the build process. The PermittedGroups entry in the Package.ini restricts usage of a package to a specific set of Active Directory users and provides the administrator a way to customize the error message to the user if they are not allowed to launch the application. For a desktop that is offline, the PermittedGroups function will utilize cached credentials to determine if the user has permission to launch the application.

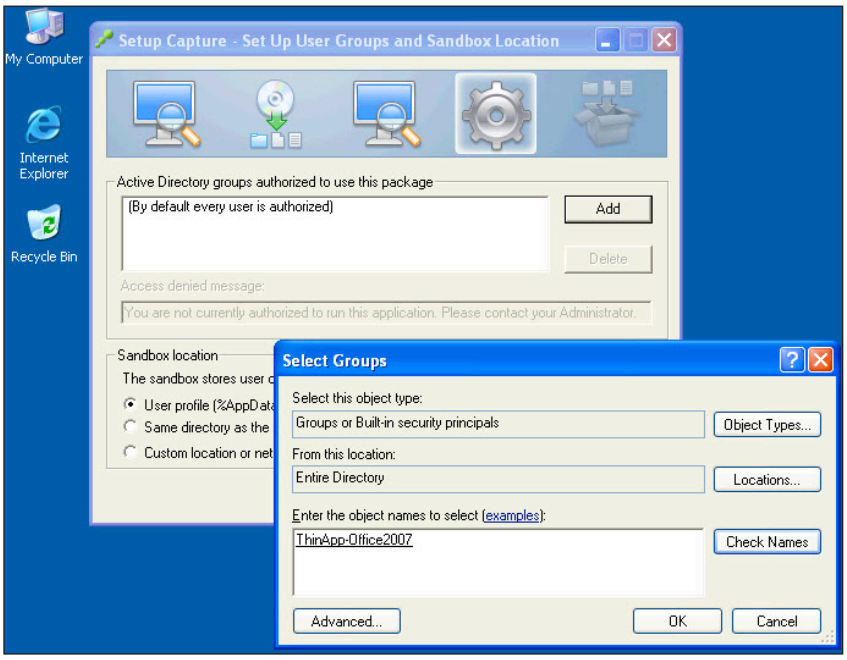

Figure 5: Active Directory Permitted Groups

Determining the Execution Mode

VMware ThinApp allows IT organizations to determine whether to use streaming or deployed execution mode or to adopt a hybrid approach that lets them manage a standard set of applications centrally while distributing others in deployed mode. The same virtualized application packages can be used for either execution mode.

Streaming Execution mode allows the application to be stored centrally and accessed by multiple users. This one-to-many model provides centralized deployment and an update of an application package to multiple end users for execution via a Windows desktop shortcut. The user launches the application from the central network location where the application resides and streams data as needed while the application is in use.

Deployed Execution mode distributes the virtualized application packages to the end user's system, on the local file system or on a USB device. In this distributed model, each client device receives and executes the package locally and therefore can run the application regardless of network connectivity. End-user devices that are occasionally or always offline require deployed execution mode. The application registration process performs the exact same function whether packages are local or remote. As described later, MSI packages use ThinReg to automatically perform application registration with the MSI installer. So the application registration entries are consistent regardless of the means use to perform the actual registration or where the package resides.

Application Registration with MSI-based ThinApp Packages

Deployment of Virtualized Applications with Electronic Software Distribution (ESD) Tools and Active Directory
Organizations can integrate the delivery of ThinApp packages to run in deployed mode whether they are .EXE or MSI based packages. These delivery mechanisms often have an already established support structure and administration workflow. You can use native Active Directory based Group Policy to publish or assign MSI packages to groups, OUs, or individuals. See the following knowledge base (KB) article for details: http://support.microsoft.com/kb/324750

An organization with an established mechanism for deploying MSI files, such as Active Directory, can deploy ThinApp MSI packages in the same manner that they would deploy native applications. The process of registering applications to the desktop makes use of the ThinReg utility whether the package is deployed as an .Exe based package or in an MSI wrapper. MSI-based packages are always 'installed' into the local operating system. However, ThinApp MSI packages actually contain the EXE based package and the ThinReg utility. The use of ThinApp MSI packages doesn't actually install anything, but rather puts the application registration process into the MSI install. In summary, for organizations that use MSI-based ThinApp packages there will be no need to make use of the ThinReg utility to perform application registration.

Determining the specifics of Application Registration

When an application is registered to the local operating system, the specifics of the registry changes, file-types associations, shortcuts, protocols, and object types are recorded in a vbs script located in the systems ThinApp sandbox. The sandbox is located by default in %AppData% and maintains user and application run time changes. Figure 6 shows the scripts that record the specifics for registering Office2007.

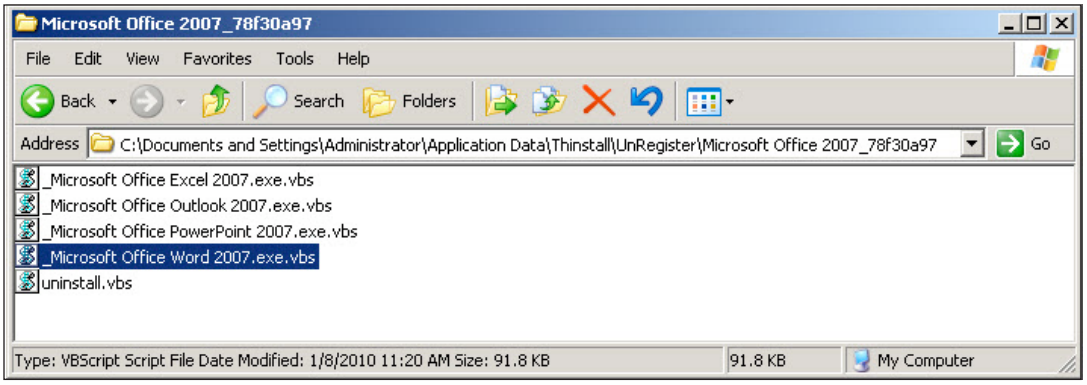

Figure 6: Scripts for registering Office 2007

Additional Resources

Additional information and references can be found on the web:

VMware ThinApp Reference Architecture
http://www.vmware.com/resources/techresources/10053

VMware ThinApp Blog
VMware ThinApp employees regularly post and participate on the VMware ThinApp blog site
http://blogs.vmware.com/thinapp/

VMware ThinApp Product Documentation
http://www.vmware.com/support/pubs/thinapp_pubs.html

VMware ThinApp Deployment Guide
http://www.vmware.com/resources/techresources/1098

About The Author

Aaron Black is a Senior Technical Marketing Manager at VMware. In this role, his primary focus is to develop technical content to aid in evaluation and implementation of VMware ThinApp technology. Aaron's background includes roles as a systems engineer and solutions consultant in the Technical Services organization. His previous positions include systems engineer with Citrix Systems, leading a technical corporate IT team at Sprint, and solutions design for customers of Choice Solutions, a platinum reseller of VMware products.

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